1060-03-29   **Elena Y. Nogina*** (`e.nogina@gmail.com`), 199 Chambers Street, Department of Mathematics, BMCC/CUNY, New York, NY 10007. *Symmetric Logic of Proofs and Provability.*

The logic of proofs and provability, GLA ([4]), is an arithmetically complete logic in the joint language of the provability logic GL [3] and the logic of proofs LP [1]. A stronger logic of proofs, SLP, introduced in [2], augments LP by the **Symmetry Principles**:

$$(u + v) : F \leftrightarrow u : F \vee v : F, \quad t(u + v) : F \leftrightarrow tu : F \vee tv : F, \text{ and } (u + v)t : F \leftrightarrow ut : F \vee vt : F.$$

In this talk, we introduce the symmetric logic SGLA of proof and provability consisting of GLA plus the Symmetry Principles. Logic SGLA is correct with respect to the standard Gödel proof predicate for Peano Arithmetic. We supply SGLA with a corresponding Kripke-Fitting semantics and show completeness of SGLA with respect to this semantics.

References: [1] S. Artemov, Explicit provability and constructive semantics, *Bulletin of Symbolic Logic*, 7(1):1-36, 2001. [2] S. Artemov, Symmetric Logic of Proofs, *Lecture Notes in Computer Science*, 4800:58-71, 2008. [3] G. Boolos, *The Logic of Provability*, Cambridge University Press, 1993. [4] E. Nogina, On logic of proofs and provability, *Bulletin of Symbolic Logic*, 12(2):356, 2006. (Received February 21, 2010)